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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/796,739  | 03/09/2004  | William L. Bowden    | 08935-251002        | 2499             |
| 26161   | 7590        | 05/27/2005           | EXAMINER            |                  |
| FISH & RICHARDSON PC<br>225 FRANKLIN ST<br>BOSTON, MA 02110 |             |                      | WEINER, LAURA S     |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 1745                |                  |
| DATE MAILED: 05/27/2005                                     |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/796,739

Applicant(s)

BOWDEN ET AL.

Examiner

Laura S. Weiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 24-25 and newly added claims 26-44 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. Claims 24-38, 42 are rejected under 35 U.S.C. 102(a) as being anticipated by Read et al. "Low Temperature Performance of Lambda-Manganese Oxide in Lithium Primary Batteries".

Read et al. teaches a lithium primary battery comprising a lambda-manganese dioxide cathode and a lithium anode having a higher energy density than conventional heat-treated B/gamma-MnO<sub>2</sub> in primary lithium batteries over the temperature range of -40 degrees C to 40 degrees C and discharge rates from 0.1 to 2.0 mA/cm<sup>2</sup>. The improvement resulted from the increased voltage and improved discharge kinetics on the 4V plateau of lambda-MnO<sub>2</sub>. Read et al. teaches in Figure 1, that the cell has a closed circuit voltage of about 4V and a specific discharge capacity at a normal discharge rate of 1 mA/cm<sup>2</sup> to a 3V cutoff of 125 mAh/g which is greater than 120 mAh/g cited in claim 24. Read et al. teaches that lambda-MnO<sub>2</sub> was prepared by placing 1.2 kg of LiMn<sub>2</sub>O<sub>4</sub> in a container with distilled water. The container was cooled

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by placing it in an ice bath. Then, 6.0 Molar H<sub>2</sub>SO<sub>4</sub> (acid) was added until the pH stabilized at  $0.7 \pm 0.1$ . The resulting solid was filtered and washed with distilled water until the rinse water came out neutral. The solid was dried in air. The single point BET surface area was 7 m<sup>2</sup>/g.

***Claim Rejections - 35 USC § 103***

3. Claim 44 is rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Read et al. "Low Temperature Performance of Lambda-Manganese Oxide in Lithium Primary Batteries".

Read et al. teaches in Figure 1, that the cell has a closed circuit voltage of about 4V and a specific discharge capacity at a normal discharge rate of 1 mA/cm<sup>2</sup> to a 3V cutoff of 125 mAh/g which is greater than 120 mAh/g cited in claim 24. Read et al. teaches that lambda-MnO<sub>2</sub> was prepared by placing 1.2 kg of LiMn<sub>2</sub>O<sub>4</sub> in a container with distilled water. The container was cooled by placing it in an ice bath. Then, 6.0 Molar H<sub>2</sub>SO<sub>4</sub> (acid) was added until the pH stabilized at  $0.7 \pm 0.1$ . The resulting solid was filtered and washed with distilled water until the rinse water came out neutral. The solid was dried in air. The single point BET surface area was 7 m<sup>2</sup>/g.

Since Read et al. teaches making the positive electrode the same way using the same compound, water and acid then inherently the same positive electrode including lambda-MnO<sub>2</sub> having a total pore volume from 0.05-0.15cm<sup>3</sup>/g must also be obtained.

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In addition, the presently claimed property of a positive electrode including  $\lambda$ -MnO<sub>2</sub> having a total pore volume from 0.05-0.15 cm<sup>3</sup>/g would have obviously have been present once the Read et al. product is provided. *In re Best*, 195 USPQ 433 (CCPA 1977).

4. Claims 39-41, 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Read et al. "Low Temperature Performance of Lambda-Manganese Oxide in Lithium Primary Batteries".

Read et al. teaches in Figure 1, that the cell has a closed circuit voltage of about 4V and a specific discharge capacity at a normal discharge rate of 1 mA/cm<sup>2</sup> to a 3V cutoff of 125 mAh/g which is greater than 120 mAh/g cited in claim 24. Read et al. teaches that  $\lambda$ -MnO<sub>2</sub> was prepared by placing 1.2 kg of LiMn<sub>2</sub>O<sub>4</sub> in a container with distilled water. The container was cooled by placing it in an ice bath. Then, 6.0 Molar H<sub>2</sub>SO<sub>4</sub> (acid) was added until the pH stabilized at  $0.7 \pm 0.1$ . The resulting solid was filtered and washed with distilled water until the rinse water came out neutral. The solid was dried in air. The single point BET surface area was 7 m<sup>2</sup>/g.

Read et al. discloses the claimed invention except for specifically teaching that the  $\lambda$ -MnO<sub>2</sub> has a BET surface area of greater than 8 m<sup>2</sup>/g, teaches instead 7 m<sup>2</sup>/g or that the specific discharge capacity is 130, 135 or 140 mAh/g or greater instead teaches around 120 mAh/g..

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a  $\lambda$ -MnO<sub>2</sub> having a BET surface area greater than 8

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m<sup>2</sup>/g or design the cell to have a specific discharge capacity greater than 140 mAh/g since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

### **Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Giwa et al. "Lithium Primary Envelope Cells" teaches a primary battery comprising a lambda-manganese dioxide cathode and a lithium anode. Giwa et al. teaches in the conclusion section that lambda-manganese dioxide gives higher energy than standard MnO<sub>2</sub> as half its discharge occurs on a higher voltage plateau (3.9V) while the remainder of the discharge is around 2.8 V. Giwa et al. teaches in Figure 6, that the nominal discharge at a 3V cutoff is around 97 mAh/g which is lower than the claimed 120 mAh/g.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

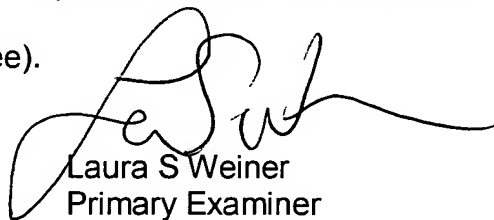
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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S. Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura S Weiner  
Primary Examiner  
Art Unit 1745

May 19, 2005